WHAT IS CLAIMED IS:

1. A pharmaceutical composition useful for treating hematological cancer in a mammal which comprises an effective amount of an arsenic sulfide compound.

2. The pharmaceutical composition of claim 1, further comprising a pharmaceutically acceptable carrier or excipient.

3. A pharmaceutical composition suitable for oral delivery to a human which comprises an effective amount of an arsenic sulfide compound.

4. The pharmaceutical composition of claim 3, further comprising a pharmaceutically acceptable carrier or excipient.

5. The pharmaceutical composition of claim 1, wherein said mammal is a human.

6. The pharmaceutical composition of claim 1, wherein the arsenic sulfide compound is selected from the group consisting of As_2S_2, As_2S_3, As_2S_5 and As_4S_4.

7. The pharmaceutical composition of claim 6, wherein the arsenic sulfide compound is As_4S_4.

8. The pharmaceutical composition of claim 1, wherein the amount of said arsenic sulfide compound is from about 100 mg to about 2 g.

9. The pharmaceutical composition of claim 2, wherein the pharmaceutically acceptable carrier or excipient is a plant semen.

10. The pharmaceutical composition of claim 9, wherein the plant semen is *seman platycladi*.

11. The pharmaceutical composition of claim 1, further comprising an effective amount of an arsenious compound, wherein the arsenic sulfide compound and the arsenious compound are not the same compound.

12. The pharmaceutical composition of claim 11, wherein the arsenious compound is selected from the group consisting of As_2S_2, As_2S_3, As_2S_5, As_4S_4 and As_2O_3.

13. The pharmaceutical composition of claim 1, further comprising an effective amount of a therapeutic agent selected from the group consisting of mustard compounds, nitrogen mustard, chlorambucil, melphalan, cyclophosphamide, busulfan, 6-mercaptopurine, 6-thioguanine, cytarabine, cytosine arabinoside, 5-fluorouracil, floxuridine, methotrexate, vincristine, vinblastine, taxol, etoposide, temiposide, dactinomycin, daunorubicin, doxorubicin, epirubicin, mitoxantron, bleomycin, mitomycin, cisplatin, carboplatin, estramustine phosphate, hydroxyurea, BCNU, procarbazine, VM-26 (vumon), interferons and all-trans retinoic acid

14. A pharmaceutical composition useful for treating hematological cancer in a mammal which comprises an effective amount of realgar and a pharmaceutically acceptable carrier or excipient.

15. A method for treating hematological cancer in a human comprising administering to said human, to which such treatment is needed, an effective amount of an arsenic sulfide compound.

16. The method of claim 15, further comprising a pharmaceutically acceptable carrier or excipient.

17. The method of claim 15, wherein said hematological cancer is selected from the group consisting of acute lymphoblastic leukemia (ALL), acute lymphoblastic B-cell leukemia, acute lymphoblastic T-cell leukemia, acute nonlymphoblastic leukemia (ANLL), acute myeloblastic leukemia (AML), acute promyelocytic leukemia (APL), acute monoblastic leukemia, acute erythroleukemic leukemia, acute megakaryoblastic

leukemia, chronic myelocytic leukemia (CML), chronic lymphocytic leukemia (CLL), multiple myeloma, myelodysplastic syndrome (MDS) such as refractory anemia with excessive blast (RAEB) and RAEB in transformation to leukemia (RAEB-T), and chronic myelo-monocytic leukemia (CMML).

18. The method of claim 17, wherein said hematological cancer is acute promyelocytic leukemia (APL).

19. The method of claim 17, wherein said hematological cancer is chronic myelocytic leukemia or chronic myeloid leukemia (CML).

20. The method of claim 17, wherein said hematological cancer is chronic lymphocytic leukemia (CLL).

21. The method of claim 17, wherein said hematological cancer is multiple myeloma.

22. The method of claim 15, wherein said hematological cancer is selected from the group consisting of high grade lymphoma, intermediate grade lymphoma and low grade lymphoma.

23. The method of claim 15, wherein said hematological cancer is non-Hodgkin's lymphoma.

24. The method of claim 15, wherein the arsenic sulfide compound is selected from the group consisting of As_2S_2, As_2S_3, As_2S_5 and As_4S_4.

25. The method of claim 24, wherein the arsenic sulfide compound is As_4S_4.

26. The method of claim 15, wherein the amount of said arsenic sulfide compound is from about 100 mg to about 2 g.

27. A method for treating hematological cancer in a human comprising administering to said human, to which such treatment is needed, an effective amount of an arsenic sulfide compound and an arsenious compound, wherein the arsenic sulfide compound and the arsenious compound are not the same compound.

28. The method of claim 27, further comprising a pharmaceutically acceptable carrier or excipient.

29. The method of claim 27, wherein said hematological cancer is selected from the group consisting of acute lymphoblastic leukemia (ALL), acute lymphoblastic B-cell leukemia, acute lymphoblastic T-cell leukemia, acute nonlymphoblastic leukemia (ANLL), acute myeloblastic leukemia (AML), acute promyelocytic leukemia (APL), acute monoblastic leukemia, acute erythroleukemic leukemia, acute megakaryoblastic leukemia, chronic myelocytic leukemia (CML), chronic lymphocytic leukemia (CLL), multiple myeloma, myelodysplastic syndrome (MDS) such as refractory anemia with excessive blast (RAEB) and RAEB in transformation to leukemia (RAEB-T), and chronic myelo-monocytic leukemia (CMML).

30. The method of claim 29, wherein said hematological cancer is acute promyelocytic leukemia (APL).

31. The method of claim 29, wherein said hematological cancer is chronic myelocytic leukemia or chronic myeloid leukemia (CML).

32. The method of claim 29, wherein said hematological cancer is chronic lymphocytic leukemia (CLL).

33. The method of claim 29, wherein said hematological cancer is multiple myeloma.

34. The method of claim 29, wherein said cancer is selected from the group consisting of high grade lymphoma, intermediate grade lymphoma and low grade lymphoma.

35. The method of claim 29, wherein said cancer is non-Hodgkin's lymphoma.

36. The method of claim 27, wherein the arsenic sulfide compound is selected from the group consisting of As_2S_2, As_2S_3, As_2S_5 and As_4S_4.

37. The method of claim 36, wherein the arsenic sulfide compound is As_4S_4.

38. The method of claim 27, wherein the arsenious compound is selected from the group consisting of As_2S_2, As_2S_3, As_2S_5, As_4S_4 and As_2O_3.

39. The method of claim 27, wherein the arsenic sulfide compound is As_4S_4 and the arsenious compound is As_2O_3.

40. A method for treating a human who is newly diagnosed of, or who is in relapsing stage of leukemia or lymphoma which comprises:

a) administering to said human an effective amount of an arsenic sulfide compound a number of times for a first period of time; and

b) administering to said human an effective amount of an arsenic sulfide compound a reduced number of times for a second period of time,

wherein the sum of the first period and second period does not exceed 100 days.

41. The method of claim 40, wherein the leukemia or lymphoma is selected from the group consisting of acute promyelocytic leukemia (APL), chronic myelocytic leukemia (CML), chronic lymphocytic leukemia (CLL), non-Hodgkin's lymphoma and multiple myeloma.

42. The method of claim 40, wherein the arsenic sulfide compound is As_4S_4.

43. The method of claim 42, wherein the amount of As_4S_4 is from about 100 mg to about 2 g.

44. The method of claim 40, wherein the arsenic sulfide compound is administered 4 times daily for the first period of time.

45. The method of claim 40, wherein the arsenic sulfide compound is administered 3-4 times daily for the second period of time.

46. A method for maintaining a human in complete remission stage of leukemia or lymphoma which comprises:

a) administering to a human who is in remission stage of said leukemia or lymphoma an effective amount of an arsenic sulfide compound for a first period of time;

b) conducting clinical tests on said human for said leukemia or lymphoma; and

c) administering to said patient an effective amount of an arsenic sulfide compound, if results of the clinical tests in step (b) indicate that the administration is necessary to completely maintain the patient in remission stage of said leukemia or lymphoma.

47. The method of claim 46, wherein the leukemia or lymphoma is selected from the group consisting of acute promyelocytic leukemia (APL), chronic myelocytic leukemia (CML), chronic lymphocytic leukemia (CLL), non-Hodgkin's lymphoma and multiple myeloma.

48. The method of claim 46, wherein the arsenic sulfide compound is As_4S_4.

49. The method of claim 46, wherein the amount of As_4S_4 is from about 100 mg to about 2 g.

50. The method of claim 46, wherein the arsenic sulfide compound is administered 3-4 times daily for the first period of time.

51. The method of claim 46, wherein the second period of time is from about 2 weeks to about 100 days.

52. A process for producing arsenic disulfide (As_4S_4), said As_4S_4 being substantially free of arsenic trioxide (As_2O_3), which comprises:

(a) suspending realgar in an aqueous solution at pH about 6-7;

(b) adjusting pH of the realgar suspension to pH about 4-4.5;

(c) decanting resultant supernatant and resuspending the remaining sediment in a solution at pH about 4-4.5;

(d) repeating step (c) until arsenic concentration in said supernatant is less than 20 mg/L;

(e) washing the remaining sediment from step (d) with an aqueous solution at pH about 6-7; and

(f) drying said powder under non-oxidizing condition.

53. The method of claim 52, wherein aqueous solution used in steps (a) and (e) is deionized double distilled water.

54. The method of claim 52, wherein the solution used in step (c) is hydrochloric acid or acetic acid solution.

55. The arsenic disulfide produced according to the method of claim 52.